i-7550 PROFIBUS to RS-232/422/485 Converter

User's Manual

High Quality, Industrial Data Acquisition, and Control Products

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List of Revision

Author	Version	Revision
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1. Introduction

PROFIBUS is the fieldbus communication system with the wide range of applications, particularly in the fields of factory and process automation. In order to use the traditional serial devices (RS232/422/485 devices) in the PROFIBUS network, ICP DAS provides the i-7550 to achieve this goal.

The i-7550 integrates devices with serial RS-232, RS-485 or RS-422 interface into Profibus DP. The i-7550 works as a Profibus DP slave module and enables the utilisation of normal DP process data for transparent communication over a serial interface. The i-7550 enables the integration of systems such as serial I/O devices, electronic scales, operator terminals, barcode readers and other automation devices which use a RS-232/RS-485/RS-422 interface into PROFIBUS DP applications. Figure 1 shows the application architecture for i-7550 modules.

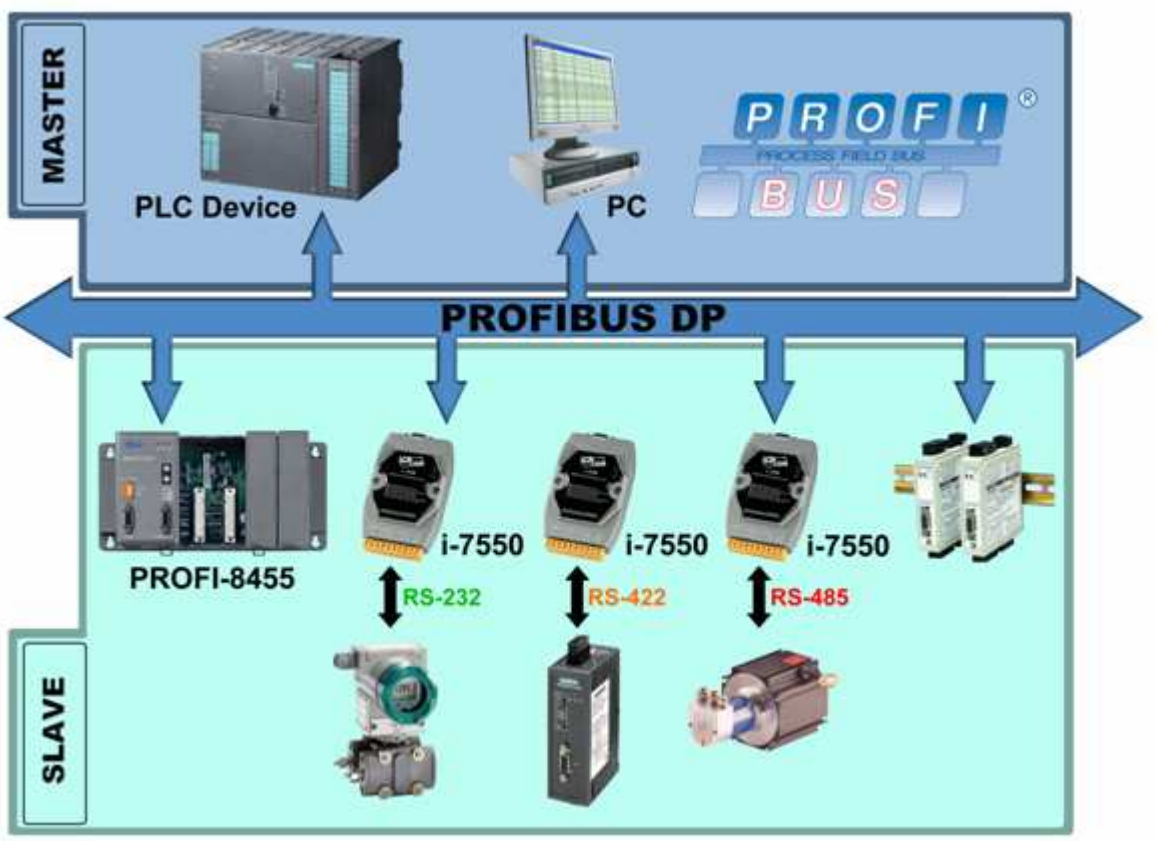


Figure 1 Application architecture of the i-7550 modules

The main features and specification of i-7550 are described as below:

1.1 Features

- 16-Bit Microprocessor inside with 80MHz
- Siemens SPC3 PROFIBUS controller
- Supports PROFIBUS DP-V0 slave
- PROFIBUS transmission rate detect automatically
- Max transmission speed up to 12M bps for PROFIBUS and 115.2K bps for COM Port
- COM Port driver has 1K bytes QUEUE input buffer & 512 bytes QUEUE output buffer
- Max length of in/output data is 128 Bytes
- Built-in self-tuner ASIC controller on RS-422/485 port
- 2500Vrms High Speed iCoupler Isolation Protection for PROFIBUS network
- 3000VDC Isolation Protection on the PROFIBUS side
- Provide LED indicators
- Built-in Watchdog
- Mountable on DIN Rail

1.2 Specification

COM Port specs:

- Serial port - RS-232/RS-422/RS-485
- Serial port interface: 14-pin screw terminal block
- Baud Rate：1200/2400/4800/9600/19200/38400/57600/115200 bps
- Data Format: 7/8 data bits, None/Odd/Even parity bit, 1 stop bit

PROFIBUS specs:

- PROFIBUS interface connector: D-sub 9-pin female
- Baud Rate: 9.6K/19.2K/45.45K/93.75K/187.5K/500K/1.5M/3M/6M/12Mbps
- Address Setting: 0~126 (set by DIP switch or EEPROM)

Power requirement:

- Unregulated +10V ~ +30V DC
- Power reverse protection, Over-Voltage brown-out protection
- Power consumption 2.5W

Module specs:

- Dimensions: 119mm X 72mm X 33mm
- Operating temperature: -25 ~ 75 ºC
- Storage temperature: -30 ~ 85 ºC
- Humidity：5 ~ 95%, non-condensing
- LED Status Indicators：

PWR LED	Show the power state/COM Port data transmit and receive state
ERR LED	Show error state
RUN LED	Show communication state of PROFIBUS

2. Hardware

2.1 Block Diagram of i-7550

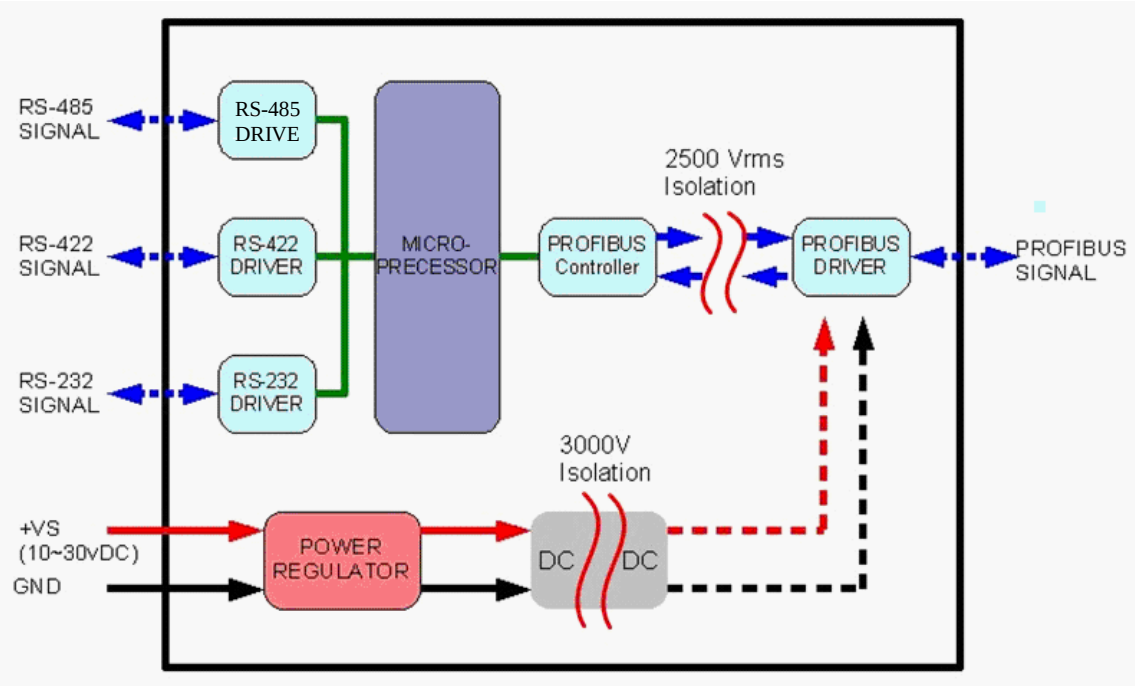


Figure 2: Block diagram of i-7550

2.2 Pin Assignment

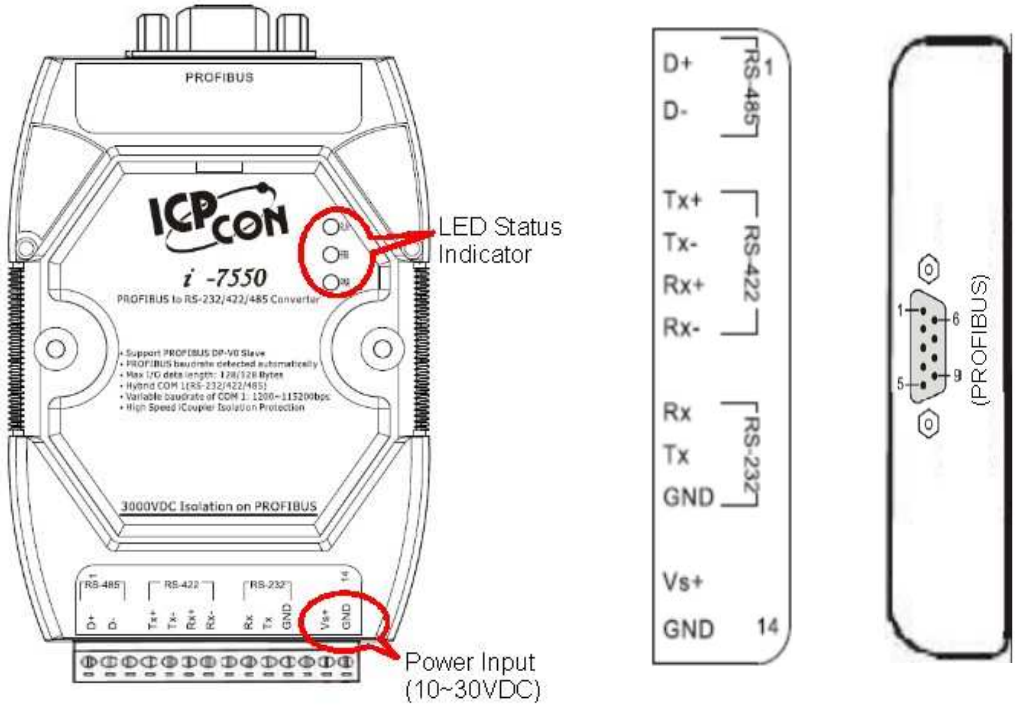


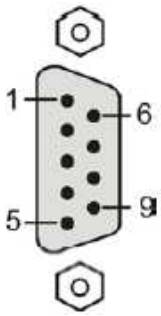
Figure 3: Pin assignment of i-7550

Table 1: 14-pin screw terminal block

Pin	Name	Description
1	D+	Data+ of RS-485
2	D-	Data- of RS-485
3	-	N/A
4	TX+	Transmit Data+ of RS-422
5	TX-	Transmit Data- of RS-422
6	RX+	Receive Data+ of RS-422
7	RX-	Receive Data- of RS-422
8	-	N/A
9	RX	Receive Data of RS-232
10	TX	Transmit Data of RS-232
11	GND	GND of RS-232
12	-	N/A
13	+VS	V+ of Power Supply(+10 to +30VDC)
14	GND	GND of Power Supply

Table 2: PROFIBUS DB9 Female Connector

Pin	Name	Description
1	-	N/A
2	-	N/A
3	B	Non-inverting Bus Line
4	ISODE	Isolated DE output for use in PROFIBUS applications where the state of the isolated drive enable node needs to be monitored.
5	GND	Power supply ground for the first node and the last node
6	VP	+5V Power Supply for the first node and the last node
7	-	N/A
8	A	Inverting Bus Line
9	-	N/A



2.3 Hardware connection

i-7550 module supports PROFIBUS to Serial Port communication. It is recommended to use only one serial port (RS232, RS485 or RS422) of i-7550 at the same time for the serial data identification clearly. The 3 kinds of serial wire connections in i-7550 are described in section 2.3.1, 2.3.2 and 2.3.3. The positions of the pull high/low resistors in i-7550 module are shown in figure 4.

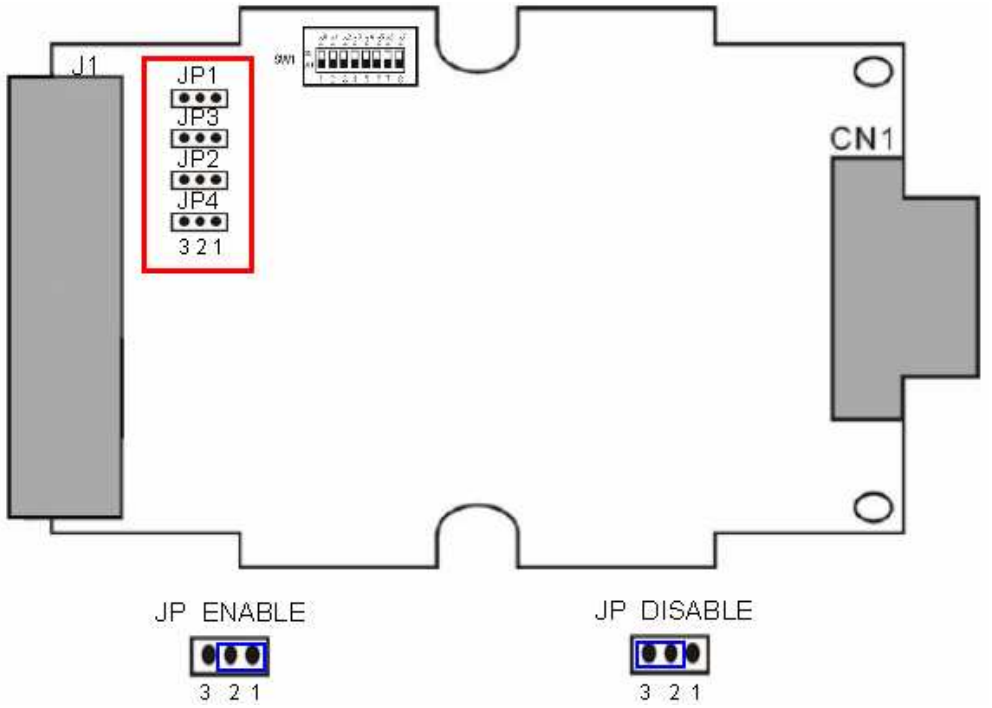


Figure 4 The positions of pull high/low resistors in i-7550 module

2.3.1 RS-232 connection

The RS-232 port in i-7550 is 3-wires. The RS232 wire connection between the i-7550 and RS-232 device is shown in figure 5.

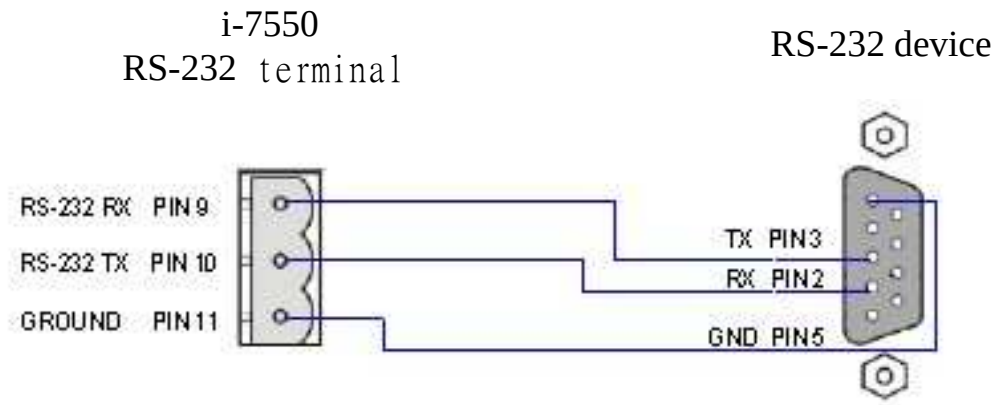


Figure 5 RS-232 connection

2.3.2 RS-422 connection

The RS-422 wire connection between the i-7550 and RS-422 device is shown in figure 6.The i-7550 module provides jumpers for user to set the pull high/low resistor or not. The setting of pull high/low resistor is shown in table 3 and figure 7,8.

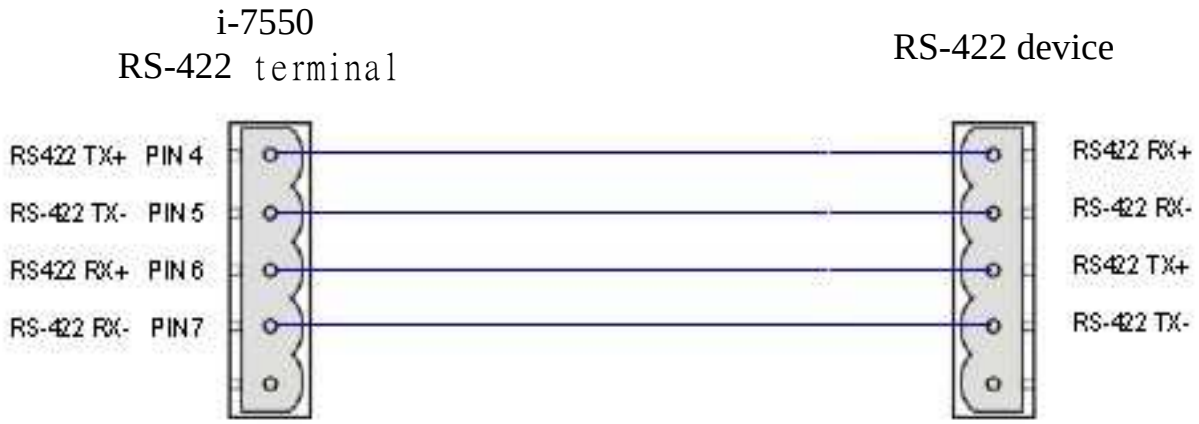


Figure 6 RS-422 connection

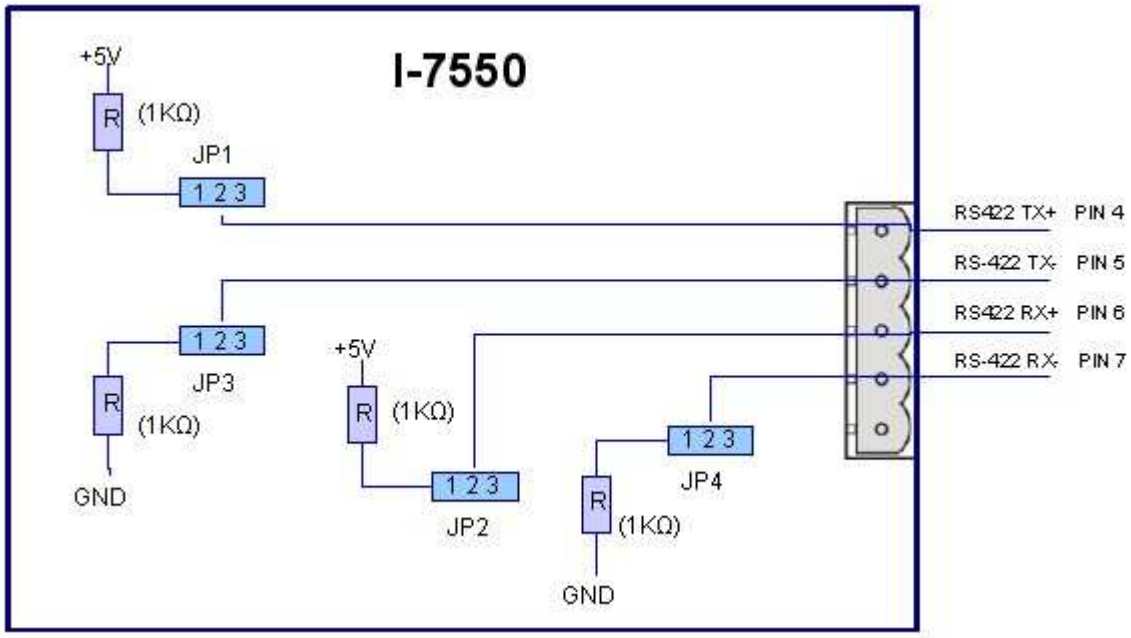


Figure 7 The configuration of pull high/low resistor

Table 3 The setting of pull high/low resistor

Pull high/low resistor	condition
enable (default)	When i-7550 is master device in RS-422 bus or the amount of connection equipment is less than 10 in RS-422 bus
disable	When i-7550 is slave device in RS-422 bus or the amount of connection equipment is more than 10 in RS-422 bus

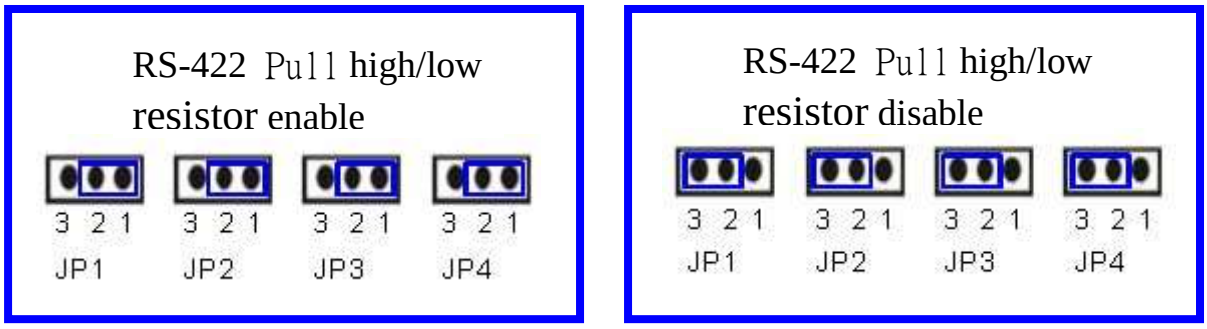


Figure 8 jumpers position

2.3.3 RS-485 connection

The RS-485 wire connection between the i-7550 and RS-485 device is shown in figure 9. The i-7550 module provides jumpers for user to set the pull high/low resistors or not. The setting of pull high/low resistors is shown in table 4 and figure 10,11.

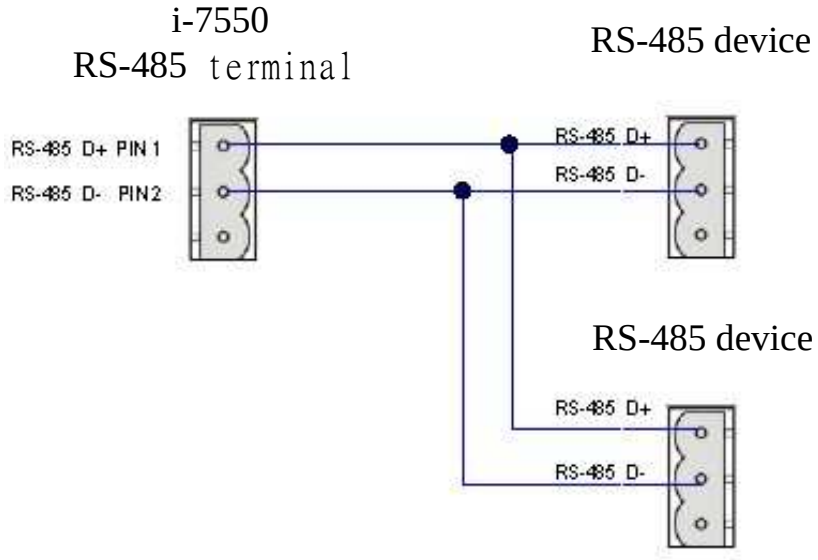


Figure 9 RS-485 connection

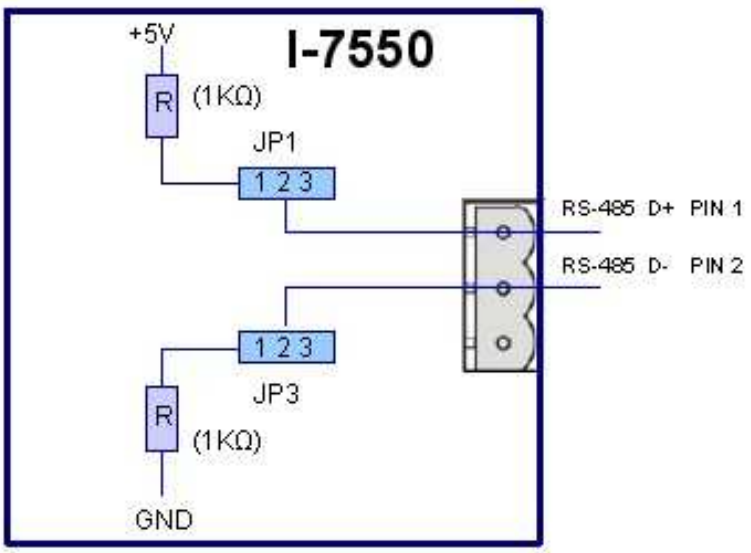


Figure 10 The configuration of pull high/low resistor

Table 4 The setting of pull high/low resistor

Pull high/low resistor	condition
enable (default)	When i-7550 is master device in RS-485 bus or the amount of connection equipment is less than 10 in RS-485 bus
disable	When i-7550 is slave device in RS-485 bus or the amount of connection equipment is more than 10 in RS-485 bus

Figure 11 jumpers position

2.3.4 PROFIBUS connection

The connector of PROFIBUS interface in i-7550 is DB9 female. It is the standard pin assignment of the PROFIBUS device. All PROFIBUS device can be connected by the PROFIBUS cable, as shown in figure 12.

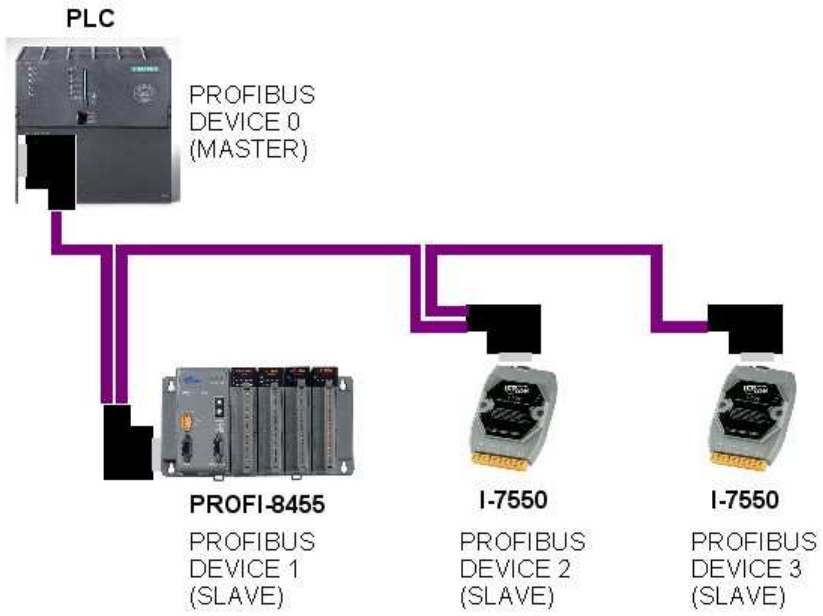


Figure 12 PROFIBUS connection

2.4 PROFIBUS bus connector and cable selection

It is recommended to use the standard PROFIBUS cable and connector (DB9 male) in the i-7550. When Cable have follow properties, it has different transmission distance with respect to different transmission rate, as shown in table 5.

1. Impedance :135~165Ω。
2. Capacity : lower than 30 pF/m
3. Loop resistance : lower than 110Ω/Km
4. Wire diameter : larger than 0.65mm
5. Core cross-section : large than 0.34mm^2

Table 5 Transmission distance compare with transmission rate

Transmission Rate(Kbps)	Transmission Distance per Segment (meter)
9.6; 19.2; 45.45; 93.75	1200
187.5	1000
500	400
1500	200
3000; 6000; 12000	100

2.5 PROFIBUS bus connection

In order to minimize the reflection effect of signal transmission, PROFIBUS device has to fit with an active terminal resistor at the first node and last node, as shown in figure 13. In standard PROFIBUS connector it is built in terminal resistor, the users can connected/disconnected terminal resistor by the connector, as shown in figure 14.

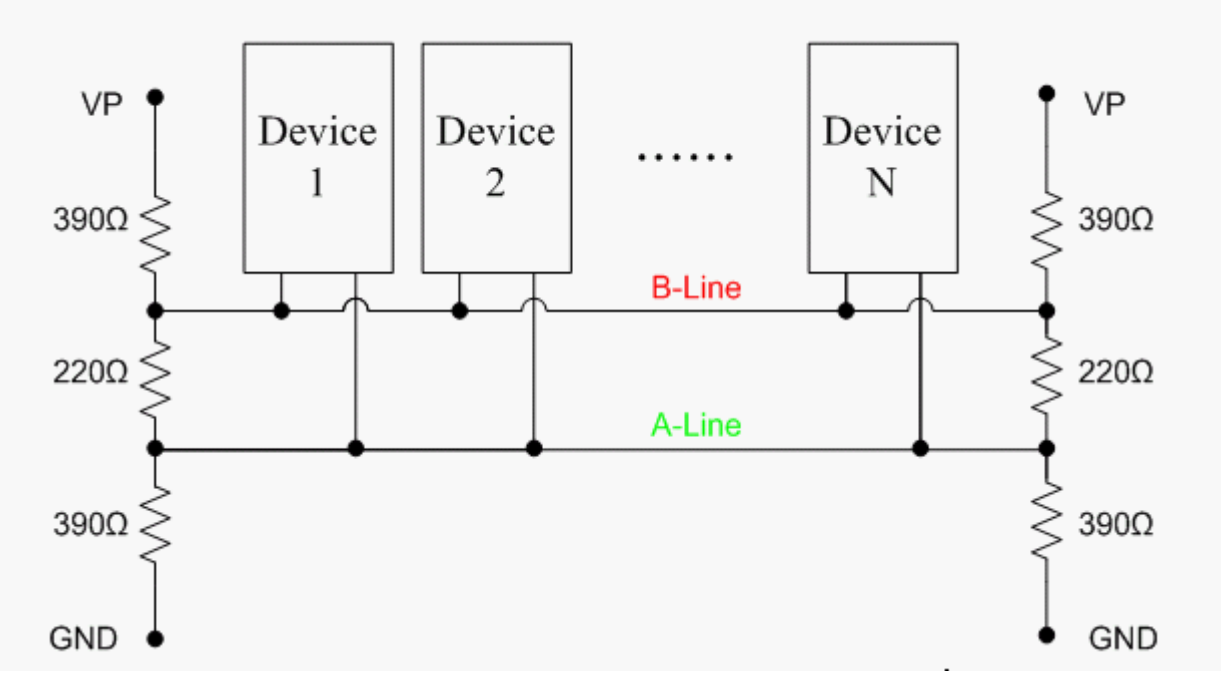


Figure 13 PROFIBUS connection

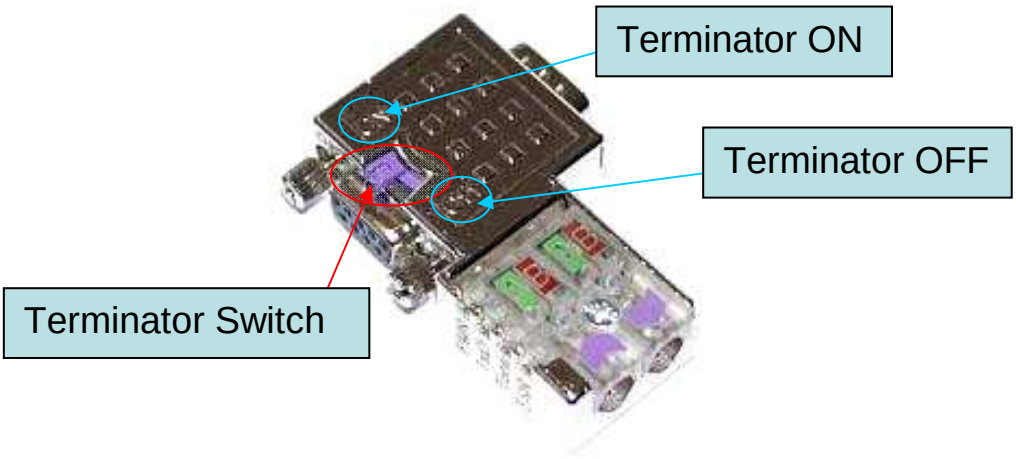


Figure 14 PROFIBUS connector

However, the number of station is also being restricted. According to PROFIBUS specification, up to 32 stations can be connected in a segment. If more than 32 stations are connected, repeater must be used to link the individual bus segments.

2.6 Address setting

The i-7550 is a slave devices of PROFIBUS DP protocol. The Station address of i-7550 can be set by the dip switch or the EEPROM. The range of dip switch is 0~126, as shown in table 6,7 and figure 15.

Table 6 dip switch setting example

Station address	**DIP SWITCH(SW1)**							
	1	2	3	4	5	6	7	8
1	1	0	0	0	0	0	0	0
10	0	1	0	1	0	0	0	0
126	0	1	1	1	1	1	1	0

Table 7　The Address setting of i-7550

Dip Switch setting	Slave Address	Description
0~125	Setting by Dip Switch	1. Address of I-7550 set by dip switch, don't care EEPROM. 2. I-7550 can't accept Set_Slave_Address telegram to set slave address in PROFIBUS configuration tool.
126	Setting by EEPROM	1. Address of I-7550 set by EEPROM, don't care dip switch. 2. If address that user saved in EEPROM is 126, I-7550 can accept Set_Slave_Address telegram to set slave address in PROFIBUS configuration tool and save address in EEPROM.
255	126	It can clear slave address that save in EEPROM last time and set 126(slave address) in EEPROM.
Note 1: When dip switch is between 127~254, dip switch setting is the same as 126. Note 2: Station address is the only one at the same time in PROFIBUS Field Bus.		

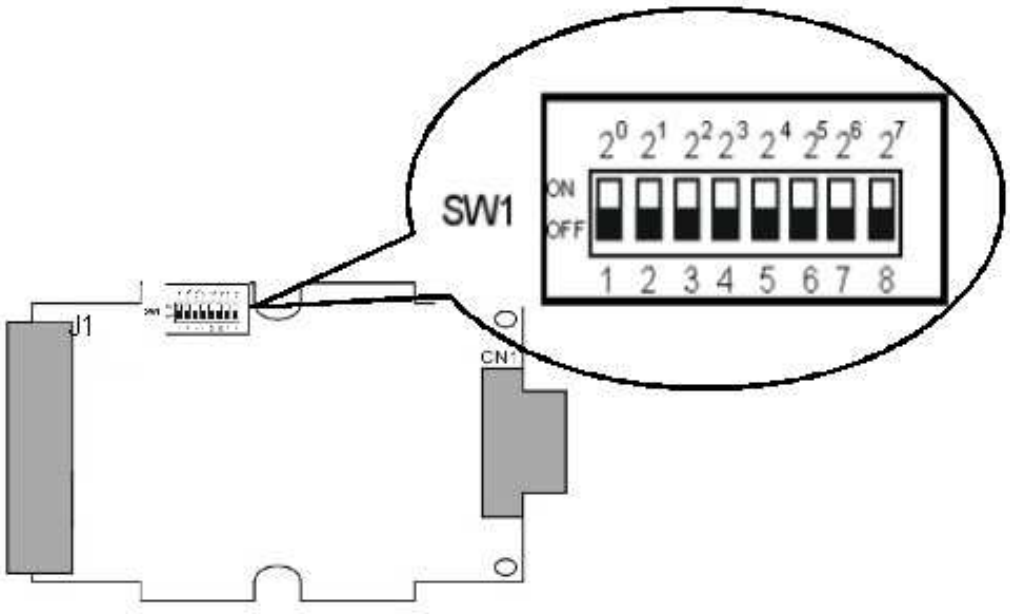


Figure 15　DIP SWITCH

2.7 LED status indicator

The i-7550 provides three LEDs to indicate the statuses of i-7550 module. The position of LEDs and descriptions are shown in table 8 and figure 16.

Table 8 LED status description

LED Name	Status	Description
PWR	flash	Power supply is ok. COM Port is transmitting or receiving data.
	on	Power supply is ok. The firmware have loaded.
	off	Power supply have failed.
ERR	on	The connection is error with PROFIBUS master device or PROFIBUS system configuration is not correct.
	off	PROFIBUS system configuration is correct. It is normal operation.
RUN	on	Data exchange mode. It is normal operation.
	off	i-7550 module is not in data exchange mode.

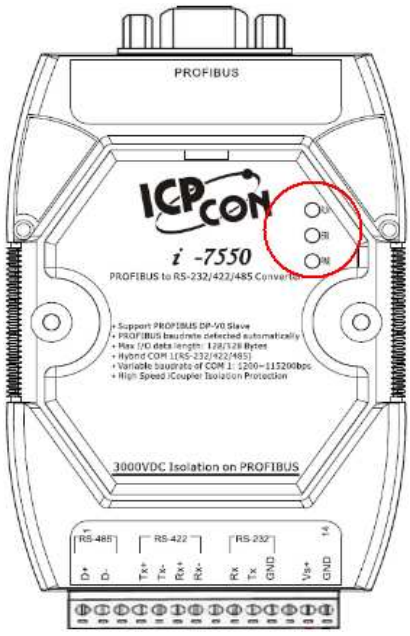


Figure 16 LED position

3. Communication

3.1 Field of application

It is up to 32 devices per PROFIBUS segment. The devices of master station can be PLC, PC or other smart device. The system can be mono-master system or multi-master system, as shown in the below figure. The i-7550 enables the integration of systems such as serial I/O devices, electronic scales, operator terminals, barcode readers and other automation devices which use a RS-232/RS-485/RS-422 interface into PROFIBUS DP applications.

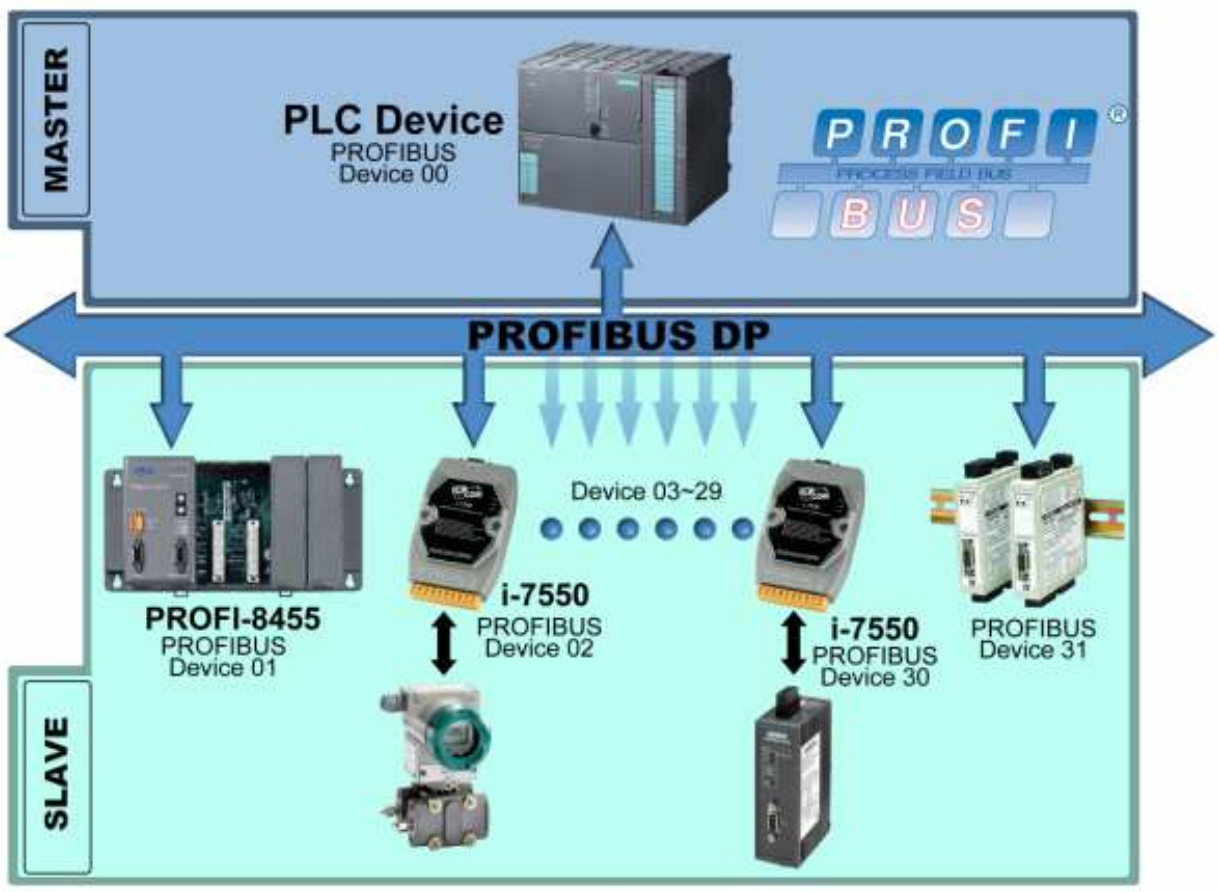


Figure 17 Mono-master system

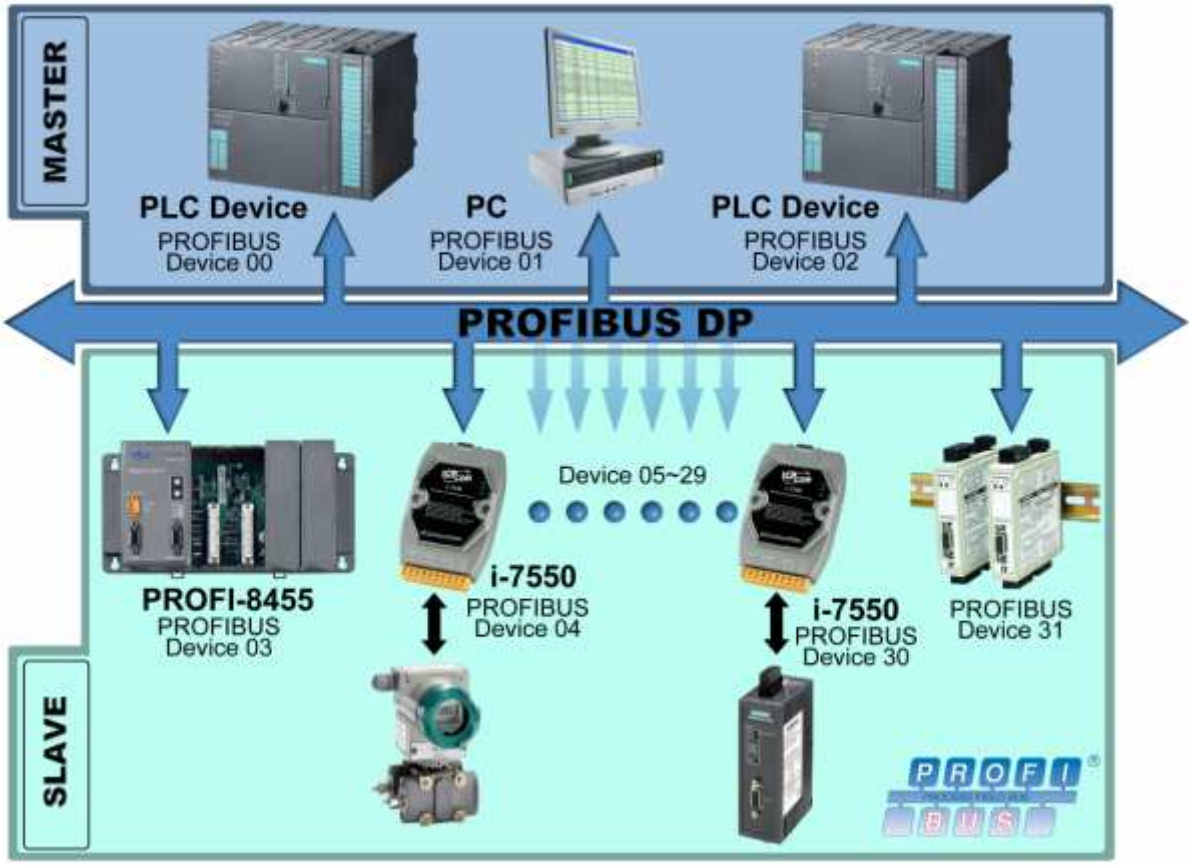


Figure 18 Multi-master system

3.2 GSD file

The characteristic (ex: baud rate, message length, number of input / output data.....) of each PROFIBUS DP device is described in the GSD file. The GSD file of i-7550 is in the ICP DAS companion CD-ROM (PATH-->CD: \PROFIBUS\ Converter\i-7550\GSD\). The user can copy IPDS0B0D.gsd and ICP_7550.bmp to the PROFIBUS configuration tool.

3.2.1 The example of how to load GSD file

In this example, we use hilscher CIF50-PB PROFIBUS communication interface to show how to load the i-7550's GSD file step by step. (Before start using the software, copy the IPDS0B0D.gsd and ICP_7550.bmp to the specific path in this software)

Step 1:Click “insert slave” button in the PROFIBUS configuration tool.

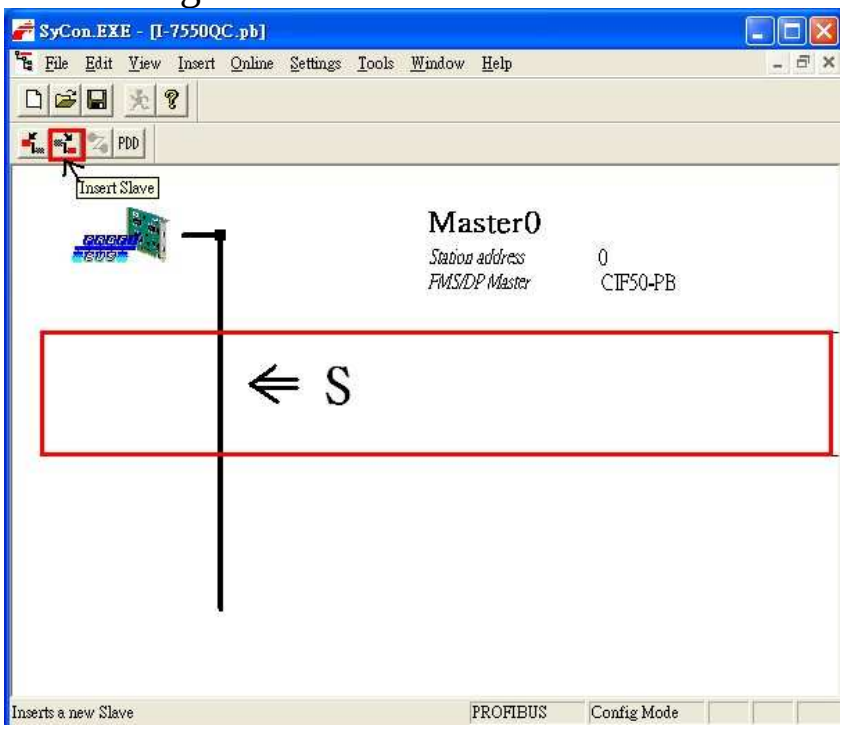


Figure 19 Adding PROFIBUS slave device

Step 2:Choose i-7550 and click “Add” button to add the i-7550 in this software.

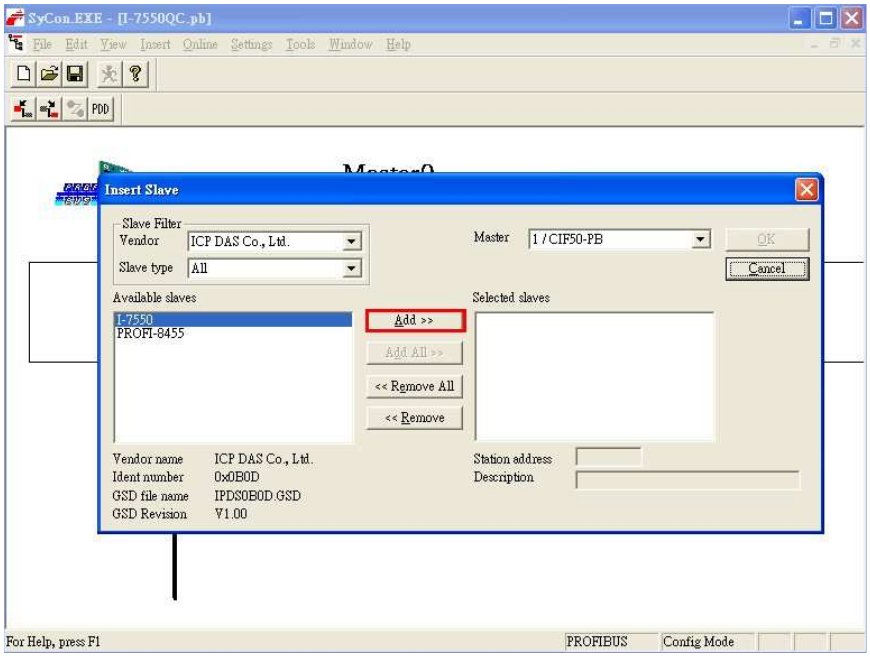


Figure 20 Choosing i-7550 device

Step 3:Set the address of i-7550 and click “OK” button.

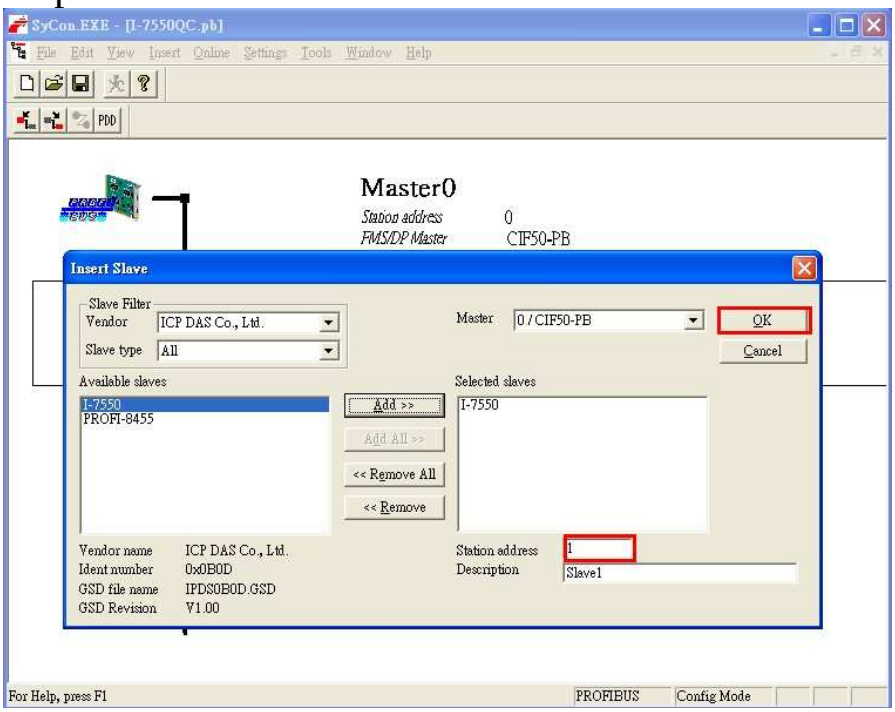


Figure 21 set i-7550 address

Step 4: The i-7550 icon is shown in the window. It is success adding the i-7550 in the software.

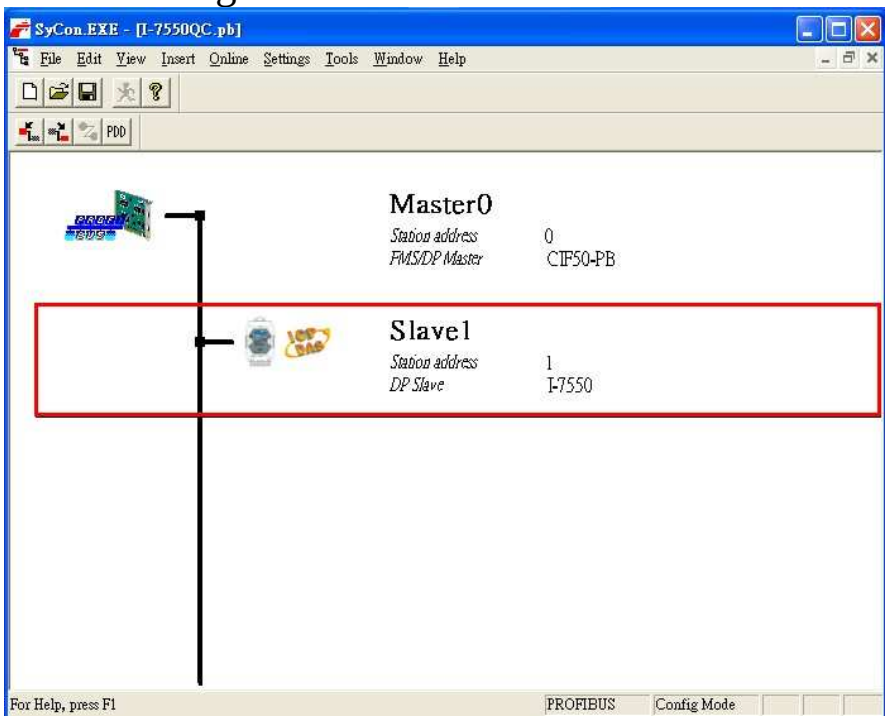


Figure 22 Finishing adding the i-7550

3.3 The Configuration of the parameters of the i-7550

The parameters data of i-7550 are COM Port baud rate, COM Port parity, COM Port data length, end char of input data and input fixed length data. The user can configure the device parameters to set the communication mode and the input data mode in the PROFIBUS configuration tool. The device parameters are described below.

- COM Port baud rate：1200/2400/4800/9600/19200/38400/57600/115200
- COM Port parity：None/Even/Odd
- COM Port data length：7/8 data bit
- The end char of the receiving serial data：None/CR,LF/CR+LF/LF+CR
- The fixed-length of the receiving serial data：Enable/Disable

PS:

A. The setting of the COM Port receive mode in i-7550 is shown in table 9.

Table 9 Data receive mode

End char of input data	Input fixed length data	Describe
X	X	The i-7550 receives data by time out mode
∨	X	The i-7550 receives data by end char of input data mode
X	∨	The i-7550 receives data by input fixed length data mode
∨	∨	The i-7550 receives data mode decided by which mode Arrive firstly

∨:enable X：disable(default value)

B. The parameters data of i-7550 is shown in table 10.

Table 10 The parameters data of i-7550

Byte	Description	Content	Value
0	COM Port baud rate	1200	0x01
		2400	0x02
		4800	0x03
		9600	0x04
		19200	0x05
		38400	0x06
		57600	0x07
		115200	0x08
1	COM Port parity	None	0x00
		Even	0x01
		Odd	0x02
2	COM Port data length	7 data bit	0x00
		8 data bit	0x01
3	The end char of the receiving serial data	None	0x00
		CR	0x01
		LF	0x02
		CR+LF	0x03
		LF+CR	0x04
4	The fixed-length of the receiving serial data	Disable	0x00
		Enable	0x01

3.4 The Configuration of the device modules

The user can set the number and size of the I/O modules in the PROFIBUS configuration tool. The settings of device modules are described below.

- Max. I/O modules: 32 modules
- System setting module: 4 byte out, 2 byte in
- Output module: 1~16 byte out, 1~16 word out
- Input module: 1~16 byte in, 1~16 word in
- Max. length of I/O data: 256 bytes
- Output length: 0~128 bytes
- Input length: 0~128 bytes

3.5 I/O data exchange

3.5.1 The input data area and the communication status words

The maximum length of input data is 128 bytes. Before arrange the input module, the user must arrange and configure the system setting module. First two bytes belong to the communication status words. The first byte shows the receiving and transmitting status. The second byte shows the receive data length from the COM Port of i-7550. From the third byte, it is receiving data area; please refer to the table 11.

Table 11 Input data area

Module	Byte	Data	Description
System setting module	0	0x00	i-7550 is no I/O data
		0x01	i-7550 is transmitting data to the COM Port
		0x02	i-7550 is receiving data from the COM Port
	1	length	Receive data length
Input module	2~127	data	Receive data from COM Port

If the receiving time of every message in the COM Port of the i-7550 is shorter than PROFIBUS cycle time, the receiving data of COM Port will be omitted. Only the last message of serial data can be send to the PROFIBUS master station.

i-7550 provides three ways to identify different batches of data to the COM Port of the i-7550. The three modes are time out, the fixed-length of the receiving data and the end char of the receiving data, please refer to the description below.

- Time out:

  In order to identify the different batch of the serial data, it will be finished to receive the batch without receiving data in the transmit time of a character. The timeout is different to consider actual circuit, equipment and environment to impact transfer rate of data. In order to identify data correctly, we recommend that the interval time between every batch of data from the serial device should more than two the transmit time of a character. Otherwise, it should adopt the other ways below to make sure the data correctly.

- The fixed-length of the receiving data :

  i-7550 can identify the different by setting the fixed-length receiving data. You can refer to the section 3.3 (The Configuration of the parameters) to enable this function. The users can refer to section 3.5.2 (Output data and command words) to set the data length. When the user enables this function, the i-7550 still identifies the batch of the receiving data without receiving data in three transmit time of a character.

- The end char in the batch of data(default):

  The i-7550 identifies different batches of the receiving data by the end char of receiving data. Please refer to section 3.3 (Configure the device parameters) to set the end char in the batch of data. When the user enables this function, the i-7550 still identifies the batch of the receiving data without receiving data in three transmit time of a character.

3.5.2 Output data area and communication command

The maximum length of output data is 128 bytes. Before arrange the output module, the user must arrange and configure the system

setting module. The first four bytes belong to communication commands. Please refer to the following table 12.

Table 12 Output data area

Module	Byte	Bit Position								Description
		7	6	5	4	3	2	1	0	
System setting module	0	-	-	-	-	-	-	-	Tb	Control bit
	1									Output data length
	2									Time out value
	3									Fixed length of data in input data area
Output module	4~127									Output data to COM Port

- Control bit(byte 0)
  Tb(Trigger bit)：Trigger bit for outputting the data. When this bit is set from 0 to 1, the data can be output once.

  Bit 1~7：It is needed to set "0"

- The length of the outputting data from the serial port of the i-7550(byte 1)
  Setting the length of the outputting data from serial port of the i-7550.

- Timeout value of the batch of the receiving data(byte 2)
  This byte provides the user to set the interval time between the different batches of the receiving data. The value is 0~255 ms (the default value is 0). It can raise the identification rate by increasing the timeout value, while the expected batch of data is not received correctly.

- The fixed-length of the receiving data in the input data area (byte 3)

  When the function of the fixed-length of the receiving data is enabled, the value of the length can be set in this byte.

- The outputting data from serial port (byte 4~127)

  The outputting data can be put in this area.

3.6 Establish connection with i-7550

Before establish the connection between DP-Master and i-7550, user should obey the following steps first.

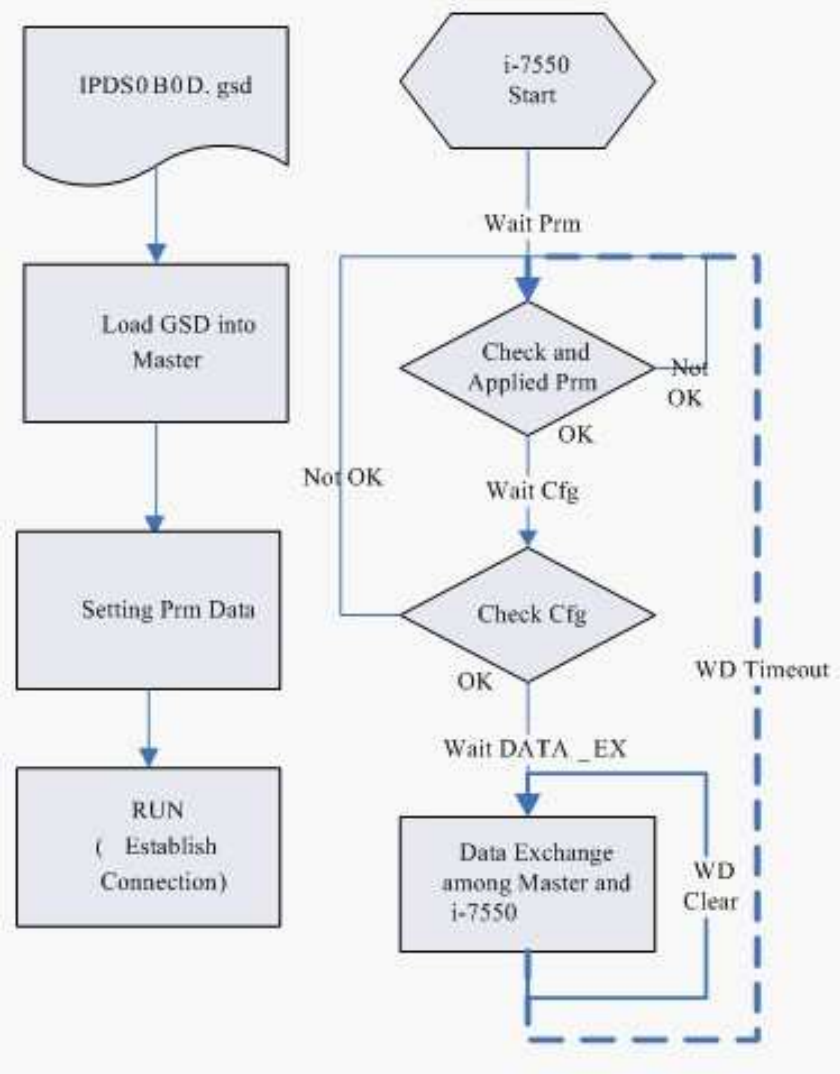


Figure 23 Establish connection with i-7550

First, users must load the electronic device description file (GSD file) of the i-7550 into the DP-Master, and then set the parameters. Finally change your DP-master from Offline state to Operate state. While DP-Master changes to operate mode, i-7550 will initial the modules. Then i-7550 allocates the memory space and waits for Set_Prm telegram. The next step is waiting for Check_Cfg telegram in order. If there is no error occurs, i-7550 proceeds into data exchange state. Users can observe the status indicator LED to know the state of i-7550. At the meantime, if there is any error occurs, i-7550 will return to wait parameterization.

3.7 The data exchange demo

Before test the demo, users must finish configuring the i-7550 by using the GSD files. In this demo, we use the CIF50-PB PROFIBUS master card of hilscher to communicate with the i-7550. Please follow the steps to test the i-7550.

Step 1: Set the address of the i-7550 as 1. Please refer to the section 2.6 to set the value.

Step 2: The connection of PC, CIF50-PB PROFIBUS master card and i-7550 is shown in figure 24

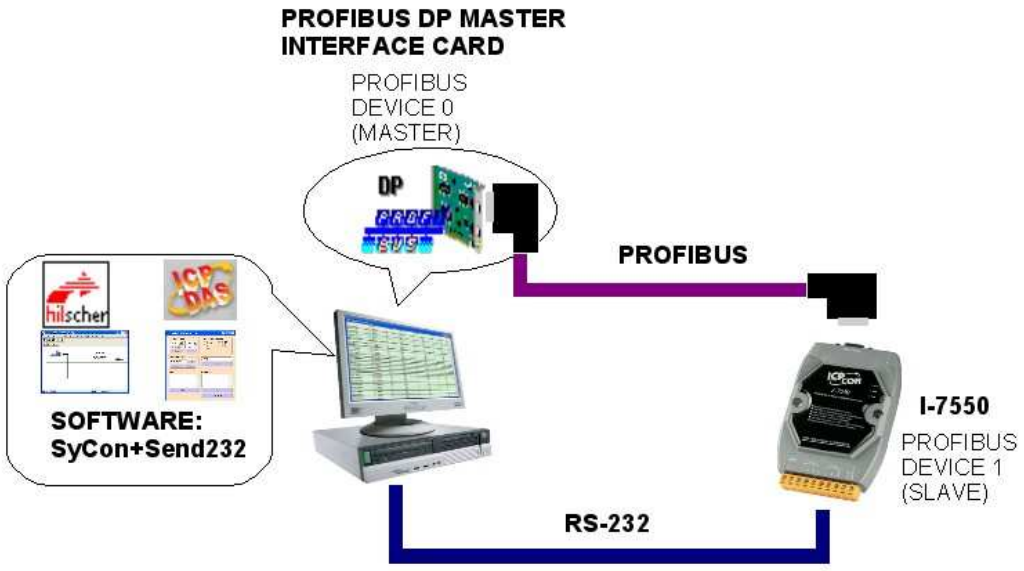


Figure 24 PROFIBUS to RS-232 connection

Step 3: Load the GSD file to the software. Please refer to the section 3.2.

Step 4: Setting the parameters of the i-7550. We uses the default value(baud rate: 115200, parity: none, data: 8 data bit, end char of input data: CR, input fixed length data: disable) in this demo. Please refer to section3.3. The users can set parameters as shown in the below.

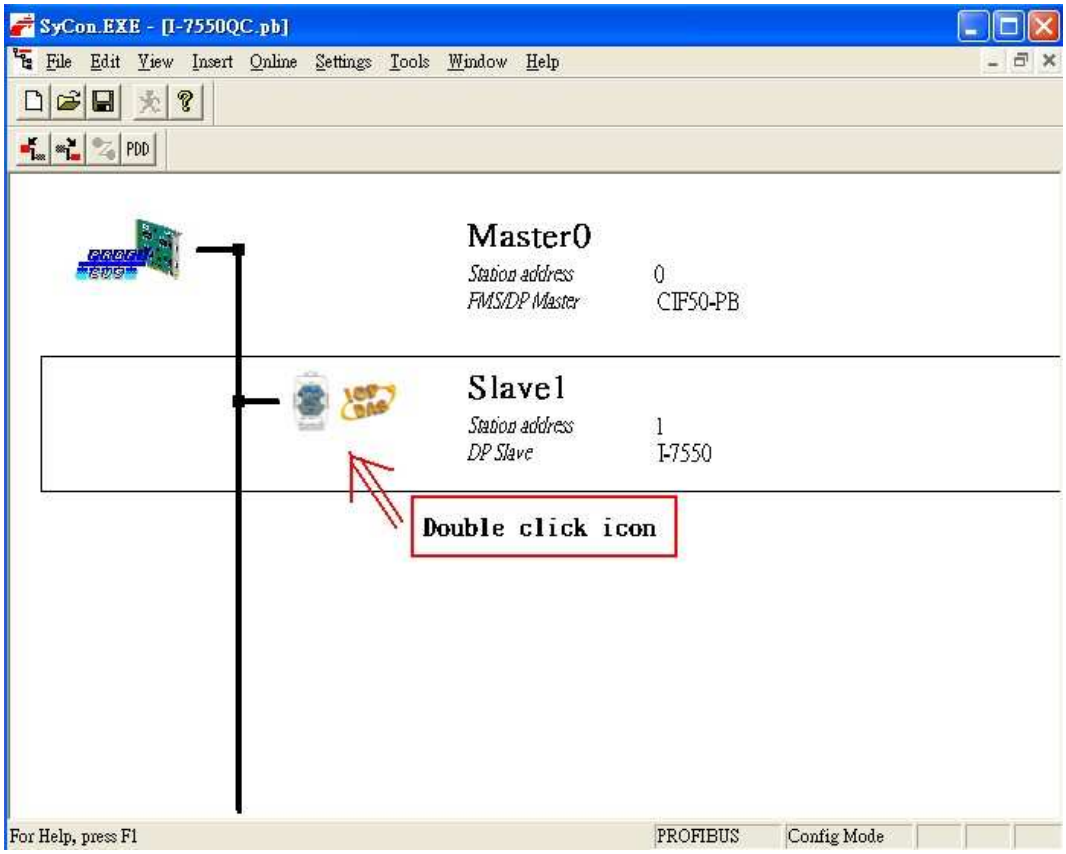


Figure 25 Double click the i-7550's icon to enter the Slave configuration dialog

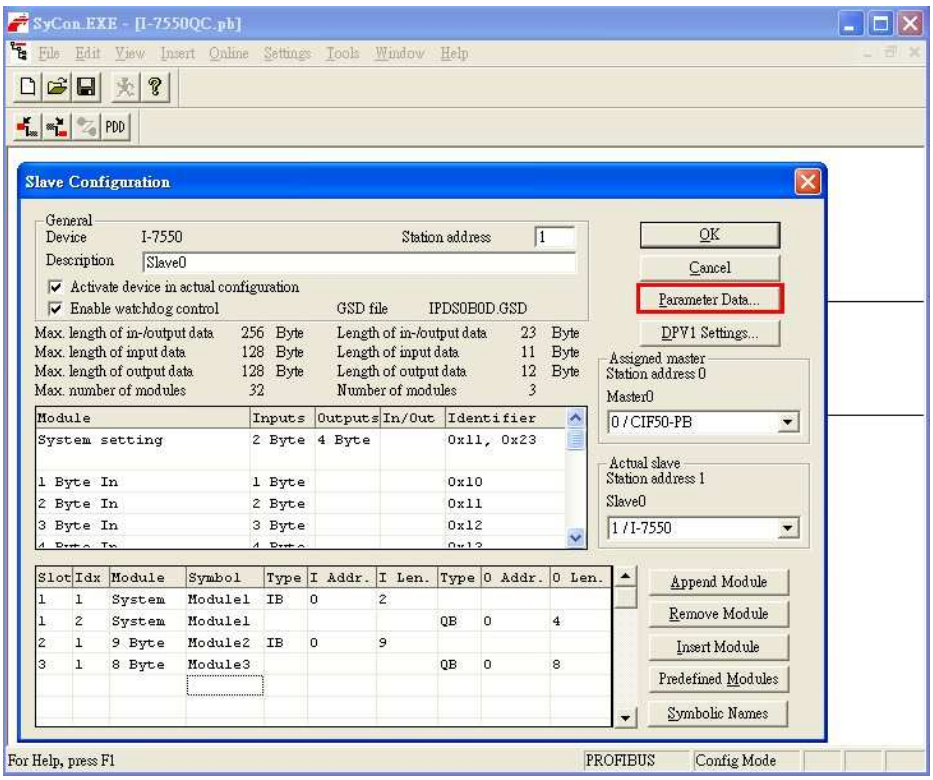

SyCon.EXE - [I-7550QC.pb]
File Edit View Insert Online Settings Tools Window Help
PDD
Slave Configuration
General
Device I-7550
Station address 1
Description Slave0
Activate device in actual configuration
Enable watchdog control
GSD file IPDS0B0D.GSD
Max. length of in-/output data 256 Byte
Max. length of input data 128 Byte
Max. length of output data 128 Byte
Max. number of modules 32
Length of in-/output data 23 Byte
Length of input data 11 Byte
Length of output data 12 Byte
Number of modules 3
OK
Cancel
Parameter Data...
DPV1 Settings...
Assigned master
Station address 0
Master0
0 / CIF50-PB
Actual slave
Station address 1
Slave0
1 / I-7550
Module Inputs Outputs In/Out Identifier
System setting 2 Byte 4 Byte 0x11, 0x23
1 Byte In 1 Byte 0x10
2 Byte In 2 Byte 0x11
3 Byte In 3 Byte 0x12
Slot Idx Module Symbol Type I Addr. I Len. Type O Addr. O Len.
1 1 System Module1 IB 0 2
1 2 System Module1 QB 0 4
2 1 9 Byte Module2 IB 0 9
3 1 8 Byte Module3 QB 0 8
Append Module
Remove Module
Insert Module
Predefined Modules
Symbolic Names
For Help, press F1
PROFIBUS
Config Mode

Figure 26 Click <Parameter Data> button to enter the Parameter Data dialog

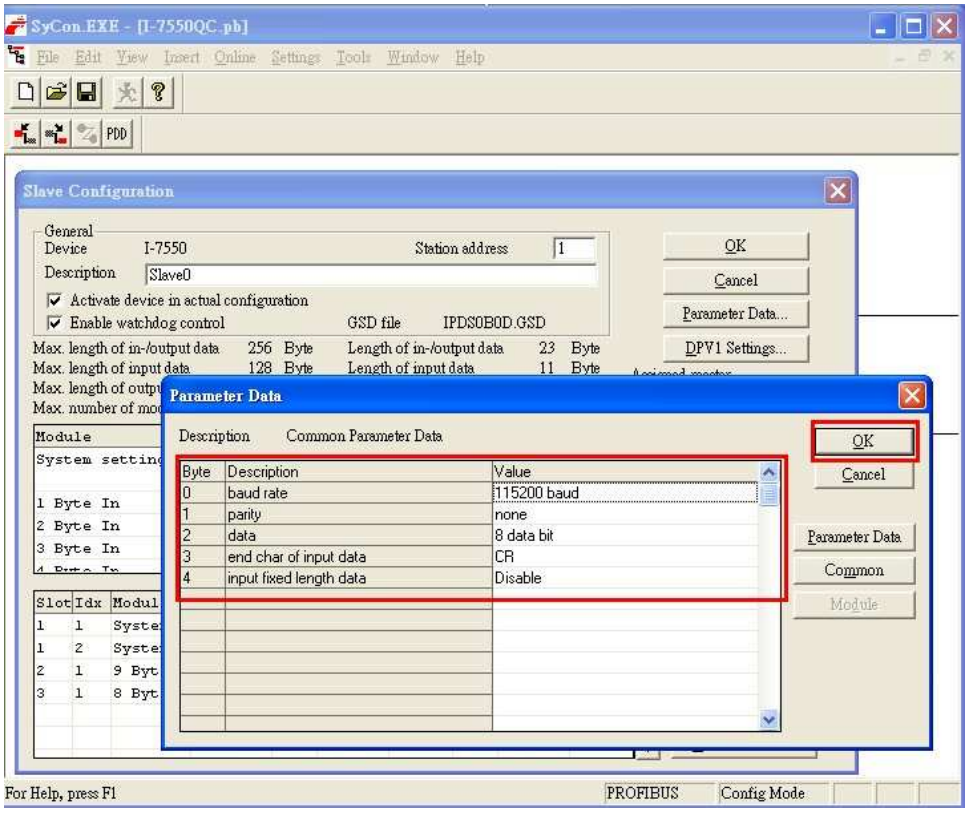


Figure 27 Select the setting and click <OK> button

Step 5: Configure and arrange the device modules of the i-7550. It arranges one “system setting module”, one “9 Byte In module” and one “8 Byte Out module” in this demo as shown in figure 28 and 29.

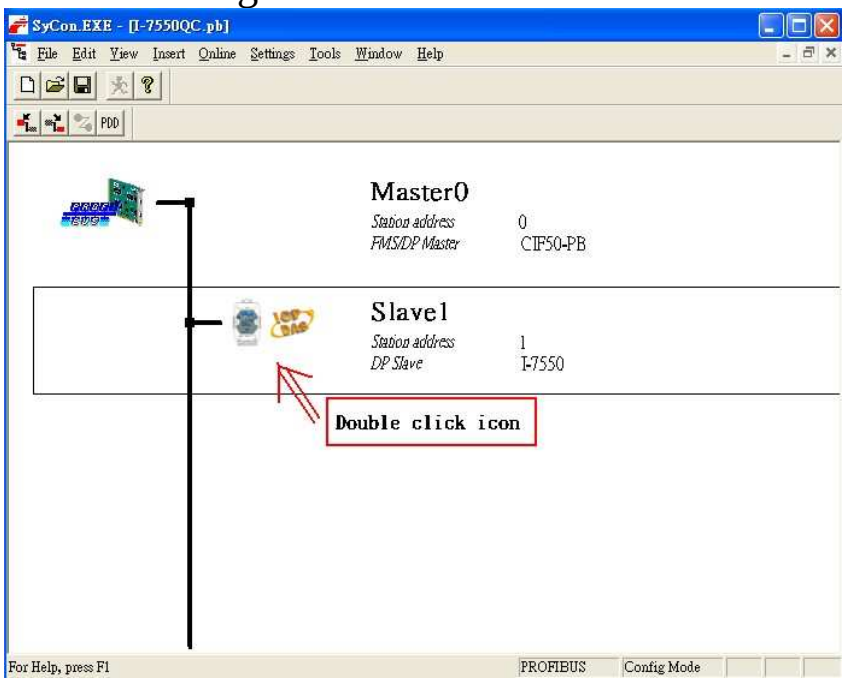


Figure 28 Double click the i-7550’s icon to enter the Slave configuration dialog

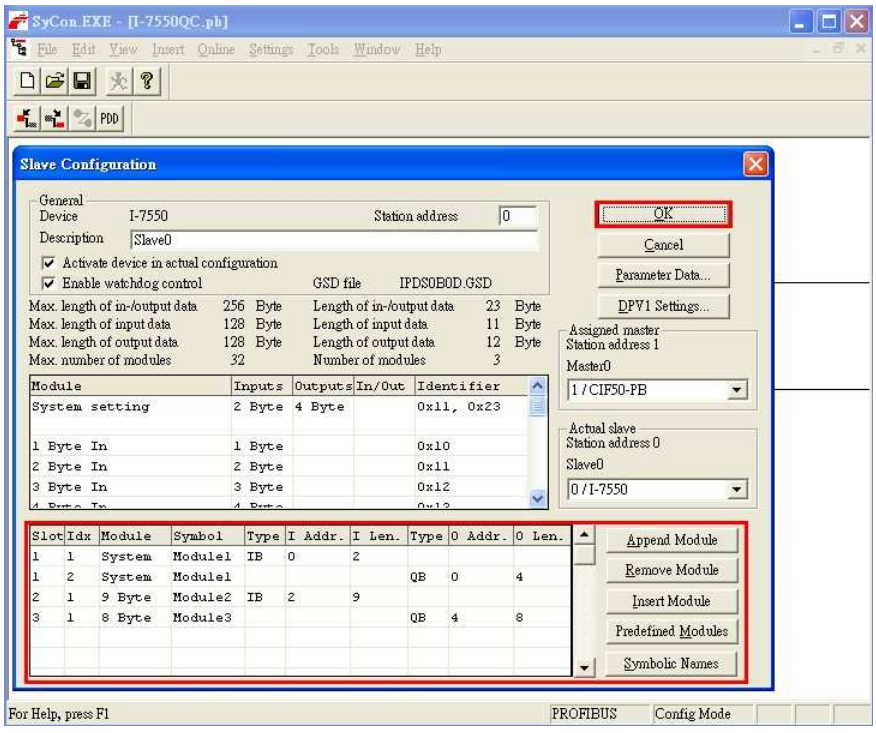

SyCon.EXE - [I-7550QC.pb]
Slave Configuration
General
Device I-7550
Station address 0
Description Slave0
Activate device in actual configuration
Enable watchdog control
GSD file IPDS0B0D.GSD
Max. length of in-/output data 256 Byte
Max. length of input data 128 Byte
Max. length of output data 128 Byte
Max. number of modules 32
Length of in-/output data 23 Byte
Length of input data 11 Byte
Length of output data 12 Byte
Number of modules 3
OK
Cancel
Parameter Data...
DPV1 Settings...
Assigned master
Station address 1
Master0
1 / CIF50-PB
Actual slave
Station address 0
Slave0
0 / I-7550
Module Inputs Outputs In/Out Identifier
System setting 2 Byte 4 Byte 0x11, 0x23
1 Byte In 1 Byte 0x10
2 Byte In 2 Byte 0x11
3 Byte In 3 Byte 0x12
Slot Idx Module Symbol Type I Addr. I Len. Type O Addr. O Len.
1 1 System Module1 IB 0 2
1 2 System Module1 QB 0 4
2 1 9 Byte Module2 IB 2 9
3 1 8 Byte Module3 QB 4 8
Append Module
Remove Module
Insert Module
Predefined Modules
Symbolic Names
For Help, press F1
PROFIBUS
Config Mode

Figure 29 Configure module and click OK button

Step 6: When finishing the process of the i-7550's configuration and saving in the PROFIBUS master successfully, the 'RUN' LED indicator of i-7550 is turned on. That shows the i-7550 working in the data exchange mode.

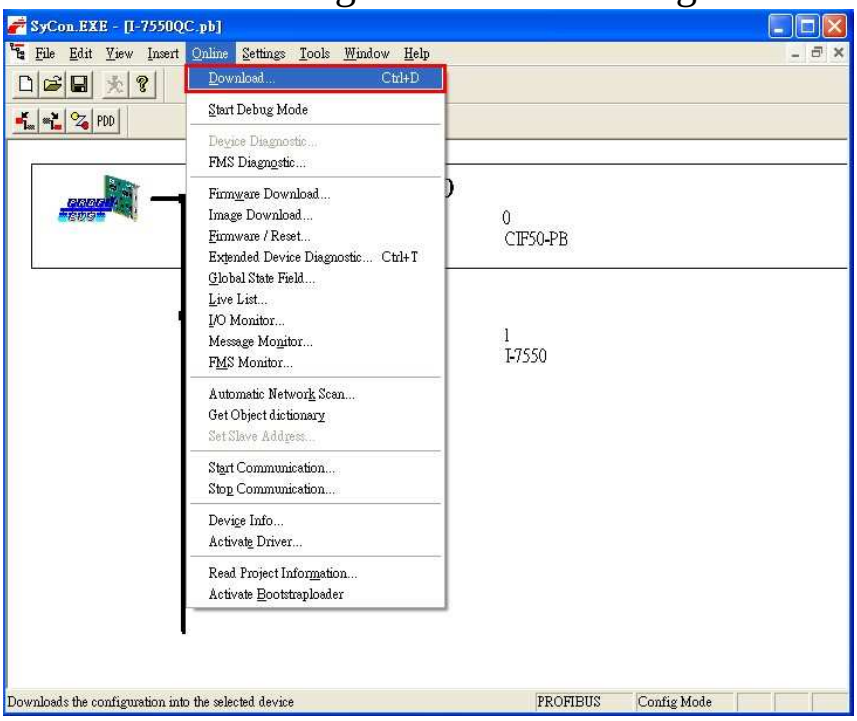


Figure 30 Click <Online->Download> to download the setting into PROFIBUS master station

3.7.1 The PROFIBUS input area of i-7550 test

This demo uses Send232 software on the PC to communicate with the i-7550. Users can get it from the ICP DAS companion CD-ROM(PATH: CD:\PROFIBUS\Converter\i-7550\utilities\send232). The Send232's setting is shown in figure 31. The Users can send "profibus" string in this software from the serial port of the PC. Then the PROFIBUS master interface can receive "profibus" string in the input data area, as shown in figure 32,33 & table 13.

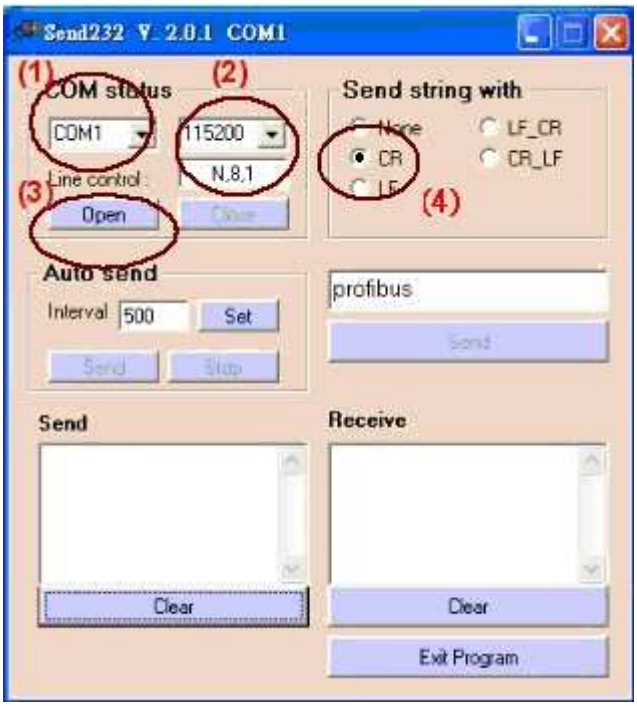


Figure 31 Send232's setting

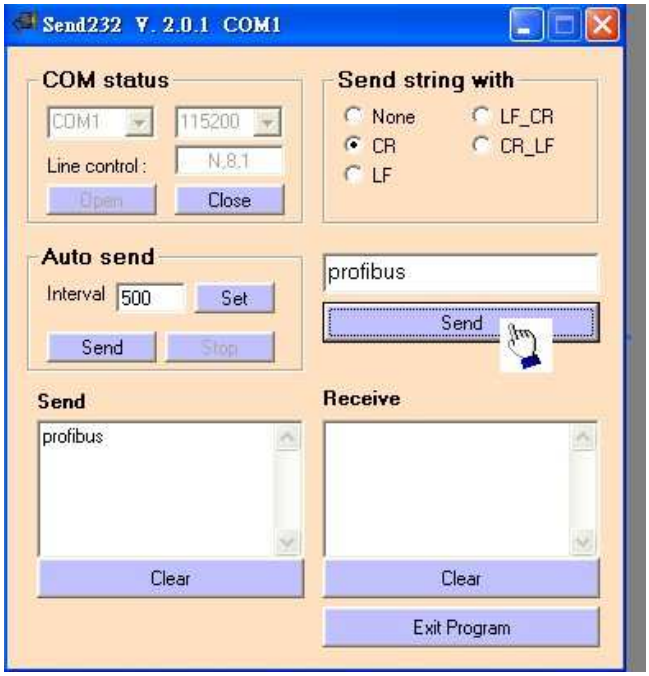


Figure 32 send "profibus" string

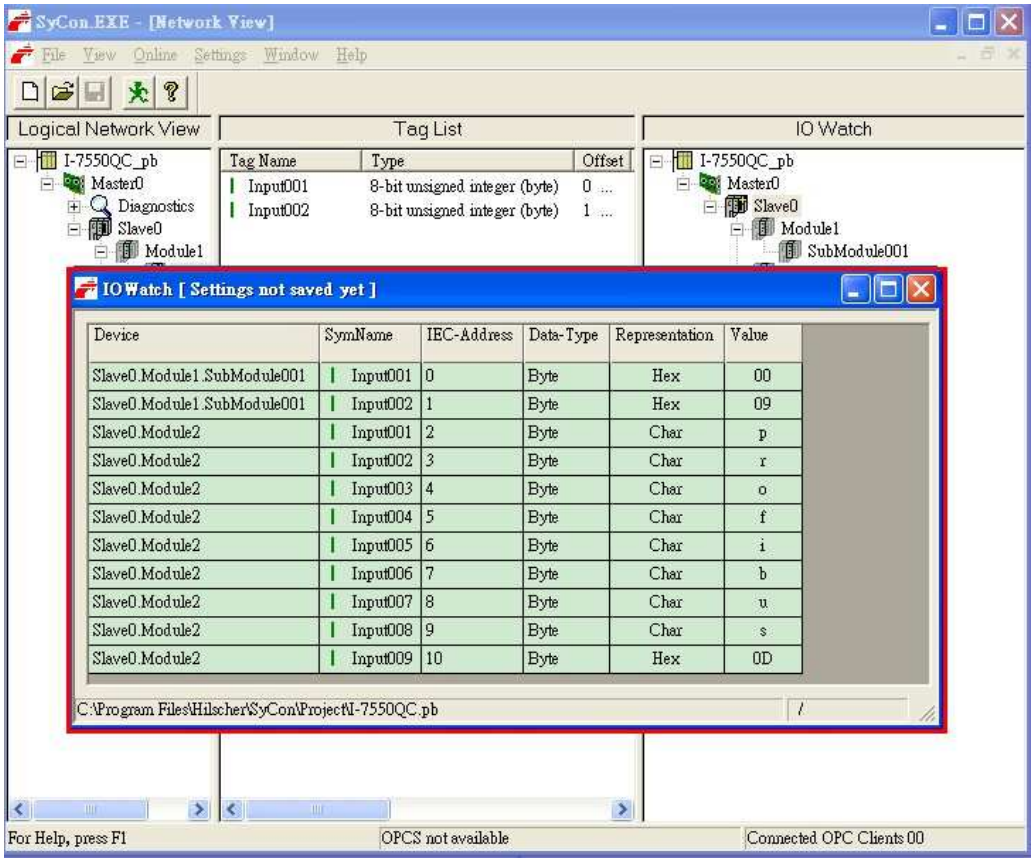


Figure 33 "profibus" string in PROFIBUS input data area

Table 13 Receive "profibus" string in PROFIBUS input data area

Module	*Byte*	*Data type*	*Representation*	*Value*	*Representation*	*Value*
1	Input 0	Byte	Hex	0x00	Hex	0x00
1	Input 1	Byte	Hex	0x08	Hex	0x09
2	Input 2	Byte	Hex	0x70	Char	p
2	Input 3	Byte	Hex	0x72	Char	r
2	Input 4	Byte	Hex	0x6F	Char	o
2	Input 5	Byte	Hex	0x66	Char	f
2	Input 6	Byte	Hex	0x69	Char	i
2	Input 7	Byte	Hex	0x62	Char	b
2	Input 8	Byte	Hex	0x75	Char	u
2	Input 9	Byte	Hex	0x73	Char	s
2	Input 10	Byte	Hex	0x0D	Hex	0x0D

3.7.2 The PROFIBUS output area of i-7550 test

It is needed to set "8" (output data length) in the second byte and "profibus" (output data) in the 5th to 12th bytes of the PROFIBUS output data area in the PROFIBUS master interface. Then set the value of the first byte from 0 to 1 to trigger the data output command. The Send232 software can show the receiving data form the i-7550 as shown in table 14 & figure 34,35.

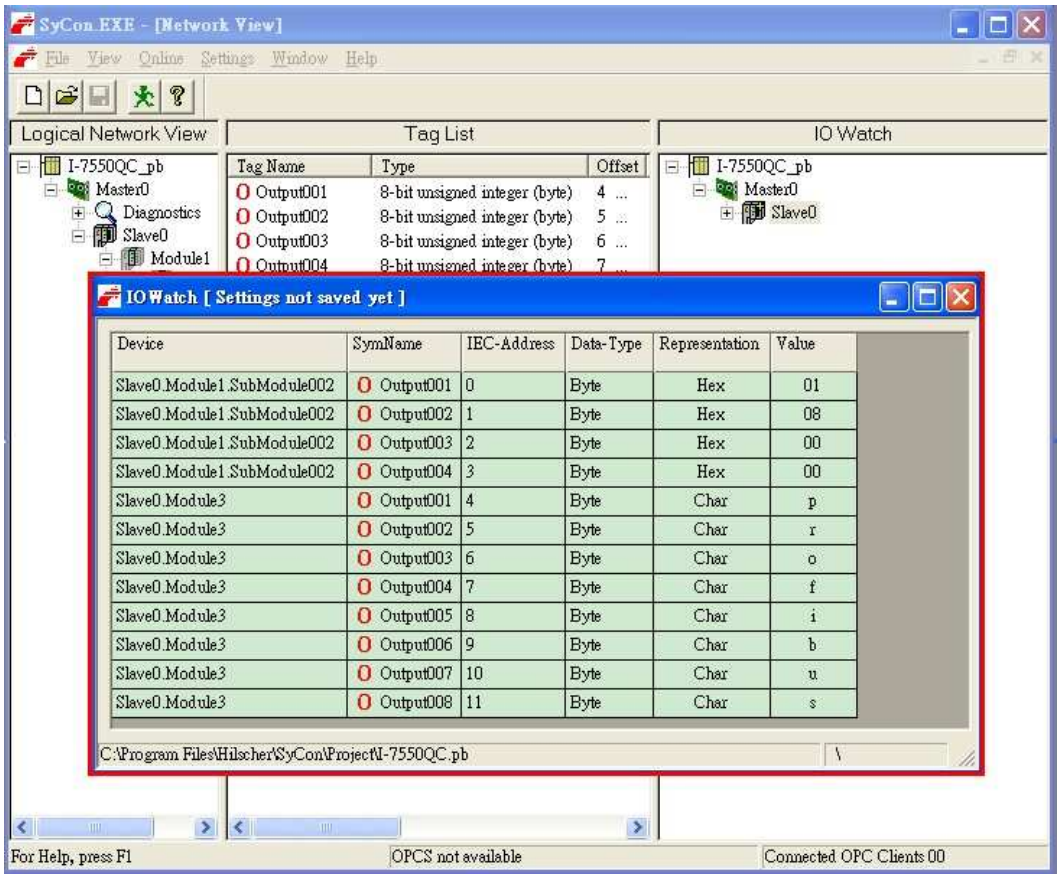

SyCon.EXE - [Network View]
File View Online Settings Window Help
Logical Network View
Tag List
IO Watch
I-7550QC_pb
Master0
Diagnostics
Slave0
Module1
Tag Name Type Offset
Output001 8-bit unsigned integer (byte) 4
Output002 8-bit unsigned integer (byte) 5
Output003 8-bit unsigned integer (byte) 6
Output004 8-bit unsigned integer (byte) 7
IO Watch [Settings not saved yet]
Device SymName IEC-Address Data-Type Representation Value
Slave0.Module1.SubModule002 Output001 0 Byte Hex 01
Slave0.Module1.SubModule002 Output002 1 Byte Hex 08
Slave0.Module1.SubModule002 Output003 2 Byte Hex 00
Slave0.Module1.SubModule002 Output004 3 Byte Hex 00
Slave0.Module3 Output001 4 Byte Char p
Slave0.Module3 Output002 5 Byte Char r
Slave0.Module3 Output003 6 Byte Char o
Slave0.Module3 Output004 7 Byte Char f
Slave0.Module3 Output005 8 Byte Char i
Slave0.Module3 Output006 9 Byte Char b
Slave0.Module3 Output007 10 Byte Char u
Slave0.Module3 Output008 11 Byte Char s
C:\Program Files\Hilscher\SyCon\Project\I-7550QC.pb
For Help, press F1
OPCS not available
Connected OPC Clients 00

Figure 34 Send "profibus" string in PROFIBUS output data area

Table 14 Send "profibus" string in PROFIBUS output data area

Module	***Byte***	***Data type***	***Representation***	***Value***	***Representation***	***Value***
1	Output 0	Byte	Hex	0x00 ⟶ 0x01	Hex	0x00 ⟶ 0x01
1	Output 1	Byte	Hex	0x08	Hex	0x08
1	Output 2	Byte	Hex	0x00	Hex	0x00
1	Output 3	Byte	Hex	0x00	Hex	0x00

Module	*Byte*	*Data type*	*Representation*	*Value*	*Representation*	*Value*
3	Output 4	Byte	Hex	0x70	Char	p
3	Output 5	Byte	Hex	0x72	Char	r
3	Output 6	Byte	Hex	0x6F	Char	o
3	Output 7	Byte	Hex	0x66	Char	f
3	Output 8	Byte	Hex	0x69	Char	i
3	Output 9	Byte	Hex	0x62	Char	b
3	Output 10	Byte	Hex	0x75	Char	u
3	Output 11	Byte	Hex	0x73	Char	s

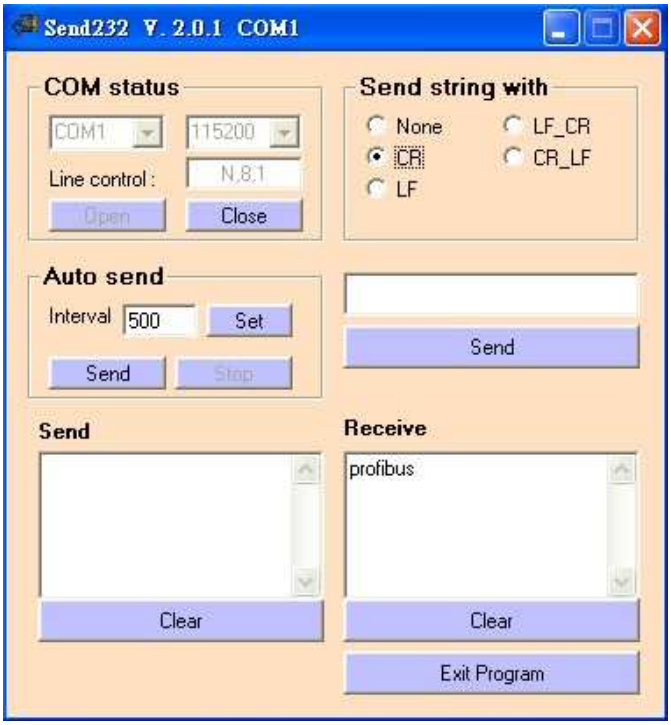


Figure 35 Receive "profibus" string

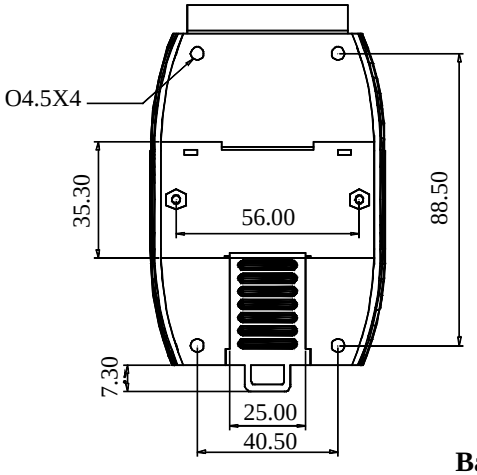
4. Troubleshooting

The troubleshooting list can help users to resolve the problems when using the i-7550. If the problem still can't be solved, please contact with technical staff of ICP DAS.

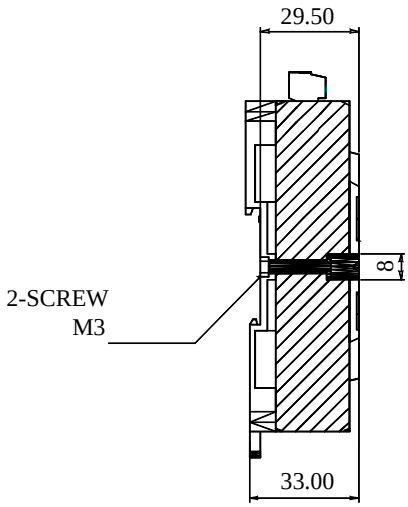
Table 15 Errors and solutions

Item	Trouble state	Solution
1	'PWR' LED indication of i-7550 is always turned off	The power supply of i-7550 has some problems. Please check the wire connection of the power and the voltage is between 10~30VDC.
2	'ERR' LED indication of i-7550 is always turned on	That means the i-7550 isn't connecting to the PROFIBUS master station. Please check the wire connection and the PROFIBUS master station. The configuration and address of i-7550 in the PROFIBUS master interface are correct.
3	Input/Output data can't transmit 、 receive or display error code.	Please check the communication setting (refer to section 3.3) of the i-7550 is the same as the equipment which connects to the i-7550 COM Port.
4	The data receive is ok, but transmit is error.	Please check output data area, the user must correct put the output data after byte 3. Is the output data length correct putting in byte 1? Is the user finally setting the Trigger bit(Tb) from 0 to 1 to trigger the data output command?
5	The data length is less receiving than transmitting in PROFIBUS master station input data area.	That means the i-7550 is receiving too fast. Here is recommending to increase time out value in byte 2 of output data area (please refer to section 3.5.2).
6	The data length is more receiving than transmitting in PROFIBUS master station input data area.	That means the interval time is not enough between the different batches of data. Here is recommending increasing the interval time between the different batches of data to avoid the data identifying error or to adopt input fixed length data or end char, please refer to section 3.5.1 & 3.5.2.

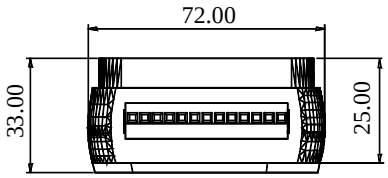
5. Dimensions



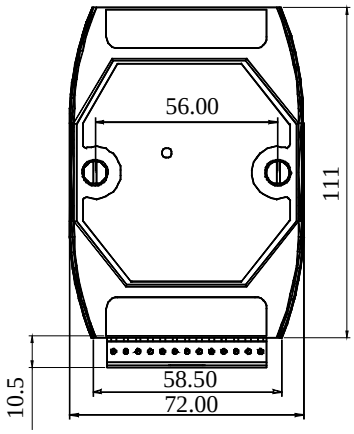
Back View



Side View



Top View



From View

Unit : mm